

### **REMARKS**

Reconsideration of the subject application in view of the preceding amendments and the following remarks is respectfully requested. Claims 1-3, and 7-9 are pending in this application. Claim 4 has been cancelled without prejudice and Claims 5-6 were previously cancelled. Claims 1 and 8 have been amended herein to further define and more particularly point out the subject matter regarded as inventive. The present amendments are submitted together with a Request for Continued Examination under 37 C.F.R. § 1.114. Support for the amendments can be found throughout the application as filed and it is respectfully submitted that no new matter has been introduced by this amendment. Reconsideration of the subject application in light of the preceding amendments and the following remarks is respectfully requested.

### **Rejections under 35 U.S.C. § 102**

Claims 1-2, 4, and 7-9 were rejected under 35 U.S.C. § 102(b) over Japanese Patent Application No. 08054067A to Kinoshita et al. (hereinafter "Kinoshita"). Kinoshita describes a full split type mechanical seal. The mechanical seal includes a seat ring (15), which is a static element, and seal ring (17) which is a rotary seal element (see Abstract). A sliding, sealing interface is formed where ring (15) abuts (at S) against ring (17) (paragraph [0013]). A retainer ring (20) is integrally fastened against seal ring holder (18), which in turn braces the outer peripheral surface of the seal ring (17) (Abstract). Drive ring (22) is integrally coupled to retainer ring (20) by drive pins (bolts 24) (see Abstract and paragraph [0014]). Drive ring (22) is fastened to rotatable shaft (11) by set bolts (23) (paragraph [0014] and Fig. 6). In this configuration, seal ring (17) ultimately follows as shaft (11) rotates. Drive ring (22) and retainer

ring (20) are each divided into two sections integrally fastened against each other so as to be removable by separating the two sections (see abstract as well as Figs 5 and 6).

In contrast, amended Claim 1 recites a divided driver device for a mechanical face seal. The driver device is axially sub-divided into a radially divided retaining ring for retaining a seal ring and a radially divided mounting ring for mounting to a rotary component. The mounting ring includes at least a pair of sections in the form of segments of a circle. The sections are adapted to be combined into a ring having an inner radial dimension that is smaller than that of the retaining ring and smaller than the nominal outer radial dimension of the rotary component, for clamping engagement with the rotary component, wherein the retaining ring and the mounting ring are coupled together with play.

Kinoshita does not teach, suggest, or disclose the divided driver device recited in amended Claim 1. In particular, Kinoshita fails to describe the retaining ring and mounting ring coupled together with play, as recited in amended Claim 1. Instead, Kinoshita discloses a purely rigid connection between the retaining and mounting rings as can clearly be seen from Fig. 1. The mounting ring (22) is bolted by means of bolts (24) to the retaining ring (20), which itself holds seal ring (17) in a rigid manner (compare drive pin 22 loosely seated in recess 23, shown in Fig. 2 of the present application). Thus Kinoshita discloses a rigid overall structure and does not teach, suggest, or disclose a loose-fit coupling between the retaining and mounting rings as recited in amended Claim 1.

The structure recited in Claim 1, has advantages over the rigid structure described by Kinoshita. Having play between the mounting ring and the retaining ring means that distortions of the mounting ring that can readily occur when clamping it on the shaft do not affect the

orientation of the retaining ring (see Page 6, last paragraph through line 3 on Page 7 of the application). Therefore, no specific care needs to be taken for mounting the mounting ring properly. When both rings are rigidly coupled, a distortion of the mounting ring results in deviation from an ideal orientation of the retaining ring and thereby that of the rotary seal ring in respect to the stationary seal ring.

Any deviation of the rotary seal ring from a predetermined orientation means a change of the shape of the seal gap between the rotary and stationary seal rings. For instance the seal gap may assume a “V” or “Λ” configuration which both may drastically affect the sealing behavior of the whole sealing device, and in certain circumstances can even result in an immediate failure of the sealing device. Moreover, the configuration of the seal gap affects the wear of the seal faces of the seal rings in a significant manner. A “V” or “Λ” configuration increases wear when compared to a shape of the seal gap in which the width of the gap is uniform all along the seal faces. All this is well known to those skilled in the art, and requires careful consideration when mounting a seal ring device. A rigid sealing device according to Kinoshita requires a great deal of trial and error work. The invention overcomes these problems in a surprisingly uncomplicated manner. This is a clear indication that the device according to the present invention can not readily be derived from Kinoshita but involves an inventive step.

Amended Claim 8 recites a divided mechanical face seal having, *inter alia*, a retaining ring and a mounting ring including at least a pair of sections in the form of segments of a circle. The sections are adapted to be combined into a ring having an inner radial dimension that is smaller than the nominal outer radial dimension of the rotary component for clamping engagement with the rotary component. The retaining ring and the mounting ring are coupled

together with play, just as recited in amended Claim 1. It has been established above with respect to amended Claim 1 that Kinoshita does not describe such a mounting ring.

Since Kinoshita does not teach, suggest, or disclose each and every element recited in amended Claims 1 and 8, it is respectfully submitted that Kinoshita does not anticipate amended Claims 1 and 8. Claims 2 and 7 depend from amended Claim 1 and thus include all the elements recited in amended Claim 1. Claim 9 depends from amended Claim 8 and thus includes all the elements recited in Claim 8, as presently amended. Therefore, it is respectfully submitted that for at least the foregoing reasons, Kinoshita does not anticipate Claims 1-2 and 7-9. Withdrawal of the rejection under 35 U.S.C. § 102(b) is therefore respectfully requested.

#### **Rejections Under 35 U.S.C. § 103**

Claim 3 was rejected under 35 U.S.C. § 103(a) over Kinoshita. Kinoshita has been described above. Claim 3 recites a driver device according to claim 2, wherein the peripherally aligned end faces of the retaining ring have a roughness  $\leq 1.0 \mu\text{m}$ , preferably  $\leq 0.8 \mu\text{m}$ , and most preferably  $0.5 \mu\text{m}$ .

Kinoshita does not disclose the particular roughness of the end faces recited in Claim 3, as per Page 4 of the Office Action. Further, it has been established above that Kinoshita does not teach, suggest, or disclose each and every element recited in Claim 1, as presently amended. Claim 3 depends from amended Claim 1 and thus includes all of the elements recited in Claim 1, as presently amended. Therefore, in addition to failing to disclose the roughness, there are whole other elements of Claim 3 that Kinoshita fails to teach, suggest, or disclose. Therefore it is respectfully submitted that Kinoshita does not anticipate or render obvious Claim 3, and there is

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Application No. 10/524,917

no *prima facie* case of obviousness with respect to Claim 3 based on Kinoshita. Withdrawal of the rejection under 35 U.S.C. § 103 is therefore respectfully requested.

**CONCLUSION**

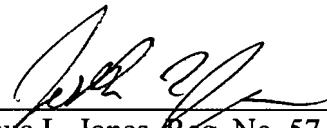
It is respectfully submitted that none of the prior art of record, alone or in combination, teaches, discloses or suggests the invention as presently claimed. Based upon the foregoing, favorable consideration of Claims 1-3 and 7-9 is respectfully requested.

If it is believed that an interview would advance prosecution, the Examiner is invited to call Applicants' representative at the number below. Likewise, if the Examiner disputes the validity of any of the pending Claims, Applicants respectfully request an interview with the Examiner to discuss why the Claims are patentable.

It is respectfully submitted that this response is timely filed, together with the enclosed Request for Continued Examination and accompanying fee. The Director is hereby authorized to charge any deficiency in the fees filed, asserted to be filed or which should have been filed herewith (or with any paper hereafter filed in this application by this firm) to our Deposit Account No. 04-1105, under Order No. 62909(51994).

Respectfully submitted,

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